

United States Patent [19][11] **Patent Number:** **6,011,585****Anderson**[45] **Date of Patent:** ***Jan. 4, 2000**

[54] **APPARATUS AND METHOD FOR ROTATING THE DISPLAY ORIENTATION OF A CAPTURED IMAGE**

4,364,650 12/1982 Terashita et al. 396/234
 5,218,459 6/1993 Parulski et al. 358/451
 5,521,639 5/1996 Tomura et al. 348/243

FOREIGN PATENT DOCUMENTS

4-120889 4/1992 Japan H04N 7/14

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[*] **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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[52] **U.S. Cl.** **348/272; 345/126; 382/296; 348/222**

[58] **Field of Search** 348/239, 263, 348/266, 272, 273, 281, 276, 231, 232, 233, 222; 358/474, 479, 482, 451; 382/296, 297; 345/126; 395/501; 364/515; H04N 7/14

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,814,227 6/1974 Hurd, III et al. 400/124.07
 3,971,065 7/1976 Bayer 348/276

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[57] **ABSTRACT**

The apparatus of the present invention preferably comprises an image sensor, an orientation sensor, a memory and a processing unit. The image sensor is used for generating captured image data. The orientation sensor is coupled to the image sensor, and is used for generating signals relating to the position of the image sensor. The memory, has an auto-rotate unit comprising program instructions for transforming the captured image data into rotated image data in response to the orientation sensor signals. The processing unit, executes program instructions stored in the memory, and is coupled to the image sensor, the orientation sensor and the memory. The method of the present invention preferably comprises the steps of: generating image data representative of an object with an image sensor; identifying an orientation of the image sensor relative to the object during the generating step; and selectively transferring the image data to an image processing unit in response to the identifying step.

35 Claims, 17 Drawing Sheets

